

App. No. 10/792,003

Reply to Office action of April 25, 2006

REMARKS/ARGUMENTS**A. Summary of the Amendment**

Reexamination and reconsideration are courteously requested. By way of the present amendment, claims 1 to 6, 34, 41, and 43 are amended. Claims 14, 32 to 33, and 42 are canceled, in addition to those canceled by way of previous amendments. Thus, claims 1 to 6, 10, 12 to 13, 16, 18 to 31, 34 to 41, and 43 are pending for the Examiner's consideration, with claims 1, 10, 16, 18, 30, 31, and 41 being independent claims.

B. Double Patenting Rejections

Claims 10 is provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as that of claim 26 in copending application no. 11/013,218 (Renteria). Also, claims 10, 12 to 14, and 16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15 to 17, and 23 to 25 of Renteria. The provisional rejections are acknowledged. It is understood that upon withdrawal of the remaining rejections set forth in the office action, the obviousness-type double patenting rejection will be withdrawn unless the copending application has issued as a patent.

C. Rejections Under 35 U.S.C. § 102(b)

Claims 1 to 6, and 34 to 43 are rejected as being anticipated by U.S. Patent No. 6,475,642 ("Zhao"). These rejections are respectfully traversed. Independent claims 1 and 34 are directed to an MCrAlYX coating, and to a turbine blade having such a coating. The coating includes a first coating layer formed on the substrate and having a composition represented by the formula MCrAlYX, wherein M comprises at least one member of the group consisting of Ni, Co, and Fe, and X comprises Pt and at least one member of the group consisting of Hf, Si,

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Zr, Ta, Re, and Ru, the weight percentage of X to the total composition being within the range of about 0.1% to about 28.0. The coating further includes at least one additional coating layer on either side of the first coating layer, wherein the at least one additional coating layer includes a MCrAlYX that does not include Pt. Please refer, for example, to paragraph 0051 of the present application for a description of this embodiment. In contrast, Zhao discloses coatings for turbine blades that may include MCrAlYX, but does not include a multiple layered MCrAlYX coating wherein one layer includes Pt and another does not include Pt. For at least this reason, Zhao fails to anticipate claims 1 to 6, and 34 to 40.

Independent claim 41 is directed to a powder composition represented by the formula MCrAlYX, wherein M comprises at least one member of the group consisting of Ni, Co, and Fe, X comprises a combination of at least Pt, Re, Ru, Hf and Si, and the weight percentage of X to the total composition is within the range of about 0.1% to about 28.0%. In contrast, Zhao discloses various alloys, some of which are modified MCrAlY materials. However, the only materials disclosed by Zhao that include rhenium are listed in the Table in column 9, and none of those rhenium-including alloys are MCrAlY alloys. For at least this reason, Zhao fails to anticipate claims 41 and 43 and it is respectfully requested that the rejections under 35 U.S.C. § 102(b) be withdrawn.

D. Rejections Under 35 U.S.C. § 103(a)

Claims 12 to 14 are rejected as being unpatentable over PCT Publication No. WO 2004/016819 (WO '819) in view of Zhao and U.S. Patent No. 5,141,821 (Lugscheider). Also, Claims 10 and 16 are rejected as being unpatentable over WO '819 in view of Zhao. These rejections are traversed (although claim 14 is canceled) since each of claims 10, 12, and 13, and 16 recites MCrAlYX powder compositions that include about 3.0 wt.% rhenium. As conceded in the office action, WO '819 fails to disclose MCrAlYX alloys that include rhenium. Further, neither Zhao nor Lugscheider discloses powders having the constituents of an MCrAlYX formulation that includes rhenium. Zhao is the only cited reference that mentions rhenium, although such materials are not disclosed with reference to a modified MCrAlYX formulation.

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As discussed above, the only materials disclosed by Zhao that include rhenium are listed in the Table in column 9, and none of those rhenium-including alloys are MCrAlY alloys. Thus, the combination of WO '819 with Lugsheider and/or Zhao fails to suggest MCrAlYX powder compositions that include about 3.0 wt.% rhenium.

Claims 18 to 29, and 31 to 33 are rejected as being unpatentable over U.S. Patent No. 5,554,837 (Goodwater) in view of Zhao. These rejections are respectfully traversed.

The combination of Goodwater and Zhao fails to suggest the features of independent claim 18, which is directed to a coating method that includes laser powder fusion welding into a turbine blade surface a powder alloy represented by the formula MCrAlYX wherein M wherein comprises at least one member of the group consisting of Ni, Co and Fe, X comprises at least one member of the group consisting of Pt, Hf, Si, Zr, Ta, Re, and Ru, and the weight percentage of X to the total composition is within the range of about 0.1% to about 28.0%. Goodwater is provided for allegedly disclosing laser powder fusion welding processes in which various MCrAlY powders are welded to a turbine blade surface. As conceded in the action, Goodwater fails to disclose the particular MCrAlYX alloys that are presently claimed. In fact, Goodwater fails to disclosed any type of modified MCrAlY alloy (i.e. MCrAlYX), but merely discloses that a powdered MCrAlY alloy, in which M is Ni or Co, can be used as a welding material. Zhao is cited for allegedly disclosing the same MCrAlYX coatings that are presently claimed.

However, regardless of the coating compositions that Zhao discloses, a person of ordinary skill in the art would not be motivated to laser powder fusion weld those Zhao coatings that fall under the description recited in the pending claims since there is no teaching or suggestion in Zhao that such coatings are suitable for bonding by any type of welding process whatsoever. Zhao discloses several deposition and spraying methods for depositing various coatings at column 7, lines 38 to 52, but makes no mention of welding. Even though Goodwater teaches that MCrAlY alloys can be laser powder fusion welded to a substrate, there is no teaching from Goodwater suggesting that any type of modified MCrAlYX powders are suitable as a laser welding material. Zhao fails to compensate for this deficiency. For at least this reason, the rejections based on Goodwater and Zhao should be withdrawn.

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Claims 18 to 33 are rejected as being unpatentable over U.S. Patent No. 7,009,137 (Guo) in view of Zhao. These rejections are respectfully traversed because Guo is not citable prior art in an obviousness rejection. Guo was filed on March 27, 2003, but was published and patented after the present application was filed. Thus, Guo only qualifies as prior art under 35 U.S.C. § 102(e). Commonly owned patent applications that qualify as prior art only under 35 U.S.C. § 102(e) can not be cited as prior art as part of an obviousness rejection under 35 U.S.C. § 103(a) by way of the provision under 35 U.S.C. § 103(c) if, at the time of the present invention, the prior art and the present invention were commonly owned. Guo is removed as prior art pertaining to any rejection under 35 U.S.C. § 103(a) since at the time the present invention was made, both the present invention and Guo were owned by Honeywell International, Inc. Since Zhao by itself fails to disclose any type of laser fusion welding process, the rejections based on the combination of Zhao and Guo should be withdrawn.

In view of Applicant's amendments and remarks, it is respectfully submitted that Examiner's objections and rejections have been overcome. Accordingly, Applicants respectfully submit that the application is now in condition for allowance, and such allowance is therefore earnestly requested. Should the Examiner have any questions or wish to further discuss this application, Applicants request that the Examiner contact the Applicants attorneys at the below-listed telephone number. If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

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Dated: July 25, 2006By: 

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